EPI-LOG

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New Public Health Recommendations for Smallpox Vaccine Use

On June 20, the Advisory Committee on Immunization Practices (ACIP) issued newly revised recommendations regarding smallpox vaccine. ACIP consists of 15 experts in fields associated with immunization who have been selected by the Secretary of the U.S. Department of Health and Human Services to provide advice and guidance to the Secretary, the Assistant Secretary for Health, and the Centers for Disease Control and Prevention (CDC) on the most effective means to prevent vaccine-preventable diseases.

Although smallpox no longer occurs, its causative agent, variola virus, still exists. There is uncertainty as to whether or not smallpox virus has been obtained by persons who might use it to cause intentional infections. Because smallpox does not occur naturally, use of smallpox vaccine is based on the probability or risk of an intentional release of variola virus during a bioterrorism attack. **The likelihood of an intentional smallpox release is impossible to know with certainty. Experts believe the risk is very small at this time, but not zero.**

Decision-making for vaccine use in general balances the risk of disease against the side effects of the vaccine. Smallpox vaccine is associated with potentially severe adverse effects. **A pre-exposure (before any smallpox cases actually occur) smallpox vaccination campaign for the U.S. general public aged 1 to 65 could result in as many as 4,600 serious adverse events and 285 deaths just among persons who are not at high-risk for vaccine complications.**

In the pre-attack setting, smallpox vaccination is not advised for persons with certain medical conditions that place them at high-risk for complications, including: HIV infection, organ or bone marrow transplantation, therapy with immunosuppressive drugs, pregnancy, congenital immune deficiency and either history of or active eczema or exfoliative dermatitis. These conditions are likely to be present in an appreciable proportion of both the general population and health care workers. Administration of smallpox vaccine to persons at high-risk for vaccine complications would result in many more serious adverse reactions, including deaths.

In the absence of natural smallpox disease, ACIP is not recommending routine vaccination of the general public or health care workers before an attack. The current low level of risk of disease does not justify the risks of such a preemptive vaccination program.

ACIP has recommended that each state develop a plan to immunize a limited number of teams and hospital staff that would be "first responders" pre-designated to investigate, care for and/or evaluate the initial cases of smallpox in the event of an attack or outbreak.

These teams would most likely include designated persons from the following high priority groups for smallpox vaccination in the event of an outbreak:

- persons involved in direct medical or public health management or transport of suspected or confirmed smallpox cases
- lab staff processing specimens from suspected or confirmed cases
- other persons at risk of contact with infectious materials (i.e. certain hospital workers)
- persons whose unhindered function is essential to support response activities

CDC will be reviewing the ACIP recommendations over the coming months and developing policy recommendations for state and local health departments. If directed to do so by CDC, Public Health – Seattle & King County and Washington State Department of Health will work together to develop smallpox response teams and provide vaccine to designated high-risk members of such teams in accordance with CDC recommendations as they are made available.

Should smallpox actually occur in a community, vaccine would be made available to persons exposed to a release of smallpox virus and/or suspected and confirmed cases and persons in priority groups for vaccination according to the CDC's Smallpox Response Plan, including health care workers and others (see above). If multiple cases or other evidence suggesting more than limited spread of smallpox in the community are present, more widespread vaccination of the population would be carried out.

The Changing Epidemiology of Varicella Disease in the Era of Varicella Vaccination

The varicella vaccine (Varivax) was approved for use in the United States in March 1995. In the five years prior, approximately 4 million cases of varicella occurred each year in the U.S. with an average of 11,000 hospitalizations and 100 deaths.[1] During the prelicensure phase, controlled clinical trials demonstrated varicella vaccine to be 70-90% effective for preventing varicella and more than 95% effective for preventing severe varicella.[2] A postlicensure study involving an outbreak with 148 children in a day care center in Georgia found the varicella vaccine was 86% effective for preventing varicella and 100% effective for preventing moderate to severe disease.[3] Data from three active varicella surveillance areas indicate that the incidence of varicella, as well as varicella-related hospitalizations, have fallen significantly since the vaccine's licensure in 1995.[4]

There has been a steady but slow increase in varicella vaccination rates among children aged 19-35 months in King County. Estimates from the National Immunization Survey indicate that varicella vaccination rates increased from 38.5% (±5.8) in 1999, to 56% (±6.2) in June 2000-July 2001. However, King County's varicella vaccination rate has consistently lagged behind the U.S. rate, which is currently 72.8% (±0.9) for children 19-35 months of age.

With only 56% of children immunized against varicella in King County, there is some concern over how a partial uptake

of the varicella vaccine in the community will affect the epidemiology of the disease in the future. In a recent study of children in 11 day care centers in North Carolina, the authors reported a significant decrease in varicella disease in both immunized and unimmunized children with a vaccine coverage rate of 63% at the end of the study period. [5] The authors conclude that this decrease in disease in the unvaccinated children is a result of herd immunity.

Mathematical models predict that if varicella vaccine coverage in children is higher than 90%, a greater proportion of varicella disease cases will occur at older ages, but the overall varicella disease burden will decrease for both children and adults.[6] However, if varicella immunization rates among the young remain relatively low, the number of children who become susceptible adults will increase, as will the opportunities for these susceptible adults to contract varicella from unimmunized children.[7] These susceptible adolescents or adults, once they are exposed to wild varicella virus, are likely to experience more severe disease with an associated increase in complications. The risk of hospitalization related to varicella infection is 5 to 10 times higher in adults than in children.[8]

To prevent varicella among older children and adults, health care providers who do not routinely offer varicella vaccine to young children need to develop mechanisms to ensure that children receive the vaccine if they have not had natural varicella infection by age 13.

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2. Izurieta HS, Strebel PM, Blake PA. Postlicensure effectiveness of varicella vaccine during an outbreak in a childcare center. *JAMA*. 1997;278:1495-99.
3. Seward JF, Watson BM, Peterson CL, et al. Varicella disease after introduction of varicella vaccine in the United States, 1995-2000. *JAMA*. 2002;287:606-11.
4. Meyer PA, Seward JF, Jumaan AO, Wharton M. Varicella mortality: trends before varicella licensure in the United States, 1970-1994. *J Infect Dis*. 2000;182:383-90.
5. Clements DA, Azref JI, Bland CL, Walter EB, Colpan PM. Partial uptake of varicella vaccine and the epidemiological effect on varicella disease in 11 day-care centers in North Carolina. *Arch Pediatr Adolesc Med*. 2001;455-61.
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7. Taylor JA. Herd immunity and the varicella vaccine: Is it a good thing? *Arch Pediatr Adolesc Med*. 2001;440-41.
8. Finger R, Hughes JP, Meade BJ, et al. Age-specific incidence of chickenpox. Public Health Rep. 1994;109:750-55.

Kitten-associated *Campylobacter* infections

During the past month, Public Health-Seattle & King County has investigated three *Campylobacter jejuni* clusters where ill kittens were the likely source of infection. All three families cared for stray or homeless kittens that had diarrhea.

Cluster 1. A 17-year-old took home 13 kittens that someone had dropped off at a pet store, and within 4 days developed diarrhea. Stool culture yielded *Campylobacter*. Eventually, all four other household members developed diarrhea. Cultures of kitten stool samples collected by Public Health yielded *Campylobacter*.

Cluster 2. Three out of four family members became ill within a week of caring for ill kittens. Stool cultures collected from two family members yielded *Campylobacter*. Stool cultures of the kittens were collected several days after antibiotic treatment was begun and none of the cultures yielded *Campylobacter*, yet the kittens are believed to be the likely source of infection.

Cluster 3. An elderly couple took in a neighborhood feral cat and her ill kittens. The couple developed diarrhea 3 to 5 days following contact with the ill kittens and one tested positive for *Campylobacter*. No stool cultures of the kittens were obtained because antibiotic treatment had already been initiated.

Campylobacter is a gram-negative bacterium that causes diarrhea, malaise, nausea, stomach cramps, fever, and vomiting 1 to 10 days (usually 2 to 5) after ingestion and may last for a week or more. Guillain-Barre syndrome is recognized as a post-infection complication (incidence <1/1000) of *C. jejuni* infection. *Campylobacter* is most often associated with raw or undercooked poultry, unpasteurized milk and milk products, and contaminated water, though, household pets, particularly kittens, puppies, birds, and certain farm animals, are often overlooked as a common source for *Campylobacter* infections.

High-risk groups should avoid direct contact with ill pets. Litter boxes, birdcages, terrariums, or any item possibly contaminated with fecal material should not be cleaned adjacent to eating areas or cooking utensils, and contaminated cleaning products should be discarded. Thorough hand-washing with soap and water is essential to prevent transfer of contaminated fecal material, and any household location used to wash these items should be cleaned as well.

Disease Reporting

AIDS	(206) 296-4645
Communicable Disease	(206) 296-4774
STDs	(206) 731-3954
Tuberculosis	(206) 731-4579
24-hr Report Line	(206) 296-4782

Hotlines:

CD Hotline	(206) 296-4949
HIV/STD Hotline	(206) 205-STDS

Past issues of the *Epi-log* can be found at:
www.metrokc.gov/health/providers

Reported Cases of Selected Diseases, Seattle & King County 2002

	Cases Reported in June		Cases Reported through June	
	2002	2001	2002	2001
AIDS	11	38	156	185
Campylobacteriosis	31	26	141	150
Cryptosporidiosis	2	1	7	11
Chlamydial infections	366	316	2134	2104
Enterohemorrhagic *E. coli* (non-O157)	0	0	0	3
***E. coli* O157: H7**	1	2	5	8
Giardiasis	7	9	98	64
Gonorrhea	119	115	723	737
***Haemophilus influenzae* (cases <6 years of age)**	0	0	0	0
Hepatitis A	2	2	23	9
Hepatitis B (acute)	5	6	14	21
Hepatitis B (chronic)	51	54	265	267
Hepatitis C (acute)1	1	1	7	8
Hepatitis C (chronic, confirmed/probable)	183	103	840	688
Hepatitis C (chronic, possible)	48	52	265	267
Herpes, genital	71	45	345	374
Measles	0	0	12	0
Meningococcal Disease	0	2	6	13
Mumps	1	0	1	0
Pertussis	9	14	16	57
Rubella	0	0	0	2
Rubella, congenital	0	0	0	0
Salmonellosis	25	26	87	123
Shigellosis	8	14	27	42
Syphilis	4	5	19	32
Syphilis, congenital	0	0	0	0
Syphilis, late	3	1	20	21
Tuberculosis	16	13	72	61

Alternate formats available upon request.